

Remarks

The Office Action mailed June 10, 2003 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 6, 7, 9, 10, 12-18 and 20 are now pending in this application. Claims 6, 7 and 9-20 stand rejected. Claims 1-5 have been withdrawn. Claims 8, 11 and 19 have been canceled.

The objection to the drawings under 37 C.F.R. 1.83(a) is respectively traversed. Claims 11 and 19 have been canceled. Claims 12 and 16 are directed to a pulse detonation system deflagration chamber 100 that is located radially outward from the engine exhaust centerbody, is downstream from, and in flow communication with, the core engine flow, and is annular and extends around the engine centerbody. Applicants submit that one of ordinary skill in the art would understand an annular deflagration chamber as is recited in Claims 12 and 16. Moreover, Figures 1 and 2 illustrate a cross-sectional view of deflagration chamber 100 which shows a relative location of deflagration chamber 100 with respect to the engine exhaust centerbody. Accordingly, Applicants respectfully submit that an artisan of ordinary skill in the art, after reading the specification in light of the Figures would understand the structure of the deflagration chamber as recited in the claims and described in the specification.

Claims 13 and 17 are directed to a pulse detonation system including a plurality of deflagration chambers 100 that are located radially outward from the engine exhaust centerbody, are downstream from and in flow communication with the core engine flow, and are spaced circumferentially around the engine centerbody. Applicants submit that one of ordinary skill in the art would understand how a plurality of deflagration chambers could be radially outward from an engine exhaust centerbody, and spaced circumferentially around the centerbody. Moreover, Figures 1 and 2 illustrate a cross-sectional view of deflagration chamber 100 which shows a relative location of deflagration chamber 100 with respect to the engine exhaust centerbody. Accordingly, Applicants respectfully submit that an artisan of ordinary skill in the art, after reading the specification in light of the Figures would

understand the structure of the deflagration chamber as recited in the claims and described in the specification.

For the reasons set forth above, Applicants request that the objections to the drawings be withdrawn.

The rejection of Claims 6, 7 and 9-20 under 35 U.S.C. § 112 is respectfully traversed.

Applicants maintain that the Federal Circuit has opined in Verve LLC v. Crane Cams, Inc., 65 USPQ 2d 1051, 1053-1054 (Fed. Cir. 2002), that "[p]atent documents are written for persons familiar with the relevant field; the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be written as a comprehensive tutorial and treatise for the generalist, instead of a concise statement for persons in the field." Moreover, Applicants further maintain that the Federal Circuit has made clear that patents are not required to be written as comprehensive tutorial and treatise for the generalist, but are rather are written as a concise statement for persons in the field. Verve LLC v. Crane Cams, Inc., 65 USPQ 2d 1051, 1053-1054 (Fed. Cir. 2002).

With respect to the structure of the deflagration chamber 100, paragraph [0013], for example, recites that deflagration chamber 100 is a "hollow chamber", and paragraph [0019], for example, recites "[D]eflagration chamber 100 is annular and extends circumferentially around centerbody 56". Applicants respectfully submit that an artisan of ordinary skill in the art would understand the structure and operation of such a deflagration chamber as recited in the claims and described in the specification. With respect to the detonation chamber 102, paragraph [0013], for example, recites that detonation chamber 102 is a "hollow chamber", and paragraph [0015], for example, recites that detonation chamber 102 is positioned at deflagration chamber downstream end 106 and in flow communication with deflagration chamber 100. Paragraph [0015] also recites that "[D]etonation chamber 102 is in serial, axial flow relationship with deflagration chamber 100." Claims 6, 7 and 9-20 do not include recitations to a "vaneless radial nozzle", however, Applicants maintain that one of ordinary skill in the art would understand a vaneless radial nozzle as recited in the claims and described in the specification, particularly in view of paragraph [0015] which recites that a vaneless radial nozzle "accelerates and directs flow from the chamber 100 into detonation chamber 102".

Applicants submit that an artisan of ordinary skill in the art, after reading the specification, would understand that a radial nozzle comprises an inlet and an outlet and that the recitation that “[f]low is directed from chamber 100 by the vaneless radial nozzle...into detonation chamber 102” would be understood by one of ordinary skill in the art that flow exiting the deflagration chamber 100 is channeled through the nozzle into the detonation chamber 102.

Furthermore, Applicants submit that an artisan of ordinary skill in the art would understand that the reference to the “critical pressure ratio” as being that operating condition at the nozzle inlet and nozzle exit such that the ratio of inlet (upstream) pressure to the exit (downstream) pressure is capable of producing supersonic velocity in the flow exiting the nozzle downstream of the nozzle exit. In addition, Applicants respectfully submit that the term “critical pressure ratio” would be understood by one of ordinary skill in the art as being a pressure ratio that is commonly used to define operating conditions within a gas turbine engine.

The implication that the statement in the specification that “[f]uel is supplied to the deflagration chamber 100 such that chamber 100 is operated in a fuel-rich mode of operation” means that no air is available for detonation to occur in detonation chamber 102. The specification, however, must be taken as a whole, rather than analyzed only sentence by sentence to determine whether the requirements of Section 112, first paragraph, are met. More specifically, the entire application should be considered in determining whether the written description requirements of Section 112 are satisfied (see MPEP § 2163). In contrast to the assertion that combustion is initiated in the absence of oxygen, the specification recites at paragraph [0014], for example, that “[D]eflagration chamber 100 is coupled in flow communication with a fuel source (not shown) and an air source (not shown) used for atomization”. Furthermore, paragraph [0019], for example, recites that detonation chamber 102 is in flow communication with flowpath 54. Applicants submit that one of ordinary skill in the art, after reading the entire specification, would understand that sufficient oxygen is present in detonation chamber 102 to allow for detonation to occur.

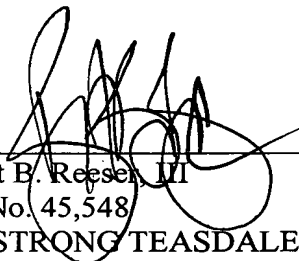
Paragraphs [0015] and [0019] have each been revised so to eliminate reference to an externally energized ignition source in detonation chamber 102, thereby removing any potential contradiction in the specification.

The Examiner has questioned why fuel in detonation chamber 102 detonates rather than deflagrates. Again, Applicants maintain that patent documents are written for persons familiar with the relevant field; the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be written as a comprehensive tutorial and treatise for the generalist, instead of a concise statement for persons in the field. Paragraph [0019] recites that “When the pressure ratio reaches the critical value, detonation occurs within detonation chamber 102.” Applicants maintain that one of ordinary skill in the art, after reading the entire specification, would understand the interaction of shock patterns in a supersonic flow, and as such would understand the detonation process within the detonation chamber.

For the reasons set forth above, Applicants respectfully request that the Section 112 rejections of Claims 6, 7, 9, 10, 12-18 and 20 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Robert B. Reesen, III', is written over a horizontal line.

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